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Job No.: CQCE/BBMP/CSR/W.No.16/2019-20 06.08.2019

Aggregate Gradation Test

IS : 2386 Part I

Client	**Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP, Bangalore.
Agency	**Sri. T. Chandra Sekar Reddy,** Contractor, Bangalore.
Name of the Work	Pothole Filling Surroundings area of Ward No.16, BBMP, Bangalore.
Type of Mix	Bituminous Concrete
Date of Testing	06.08.2019

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	565	11.30	11.30	88.70	79 - 100	
9.5	635	12.70	24.00	76.00	70 - 88	
4.75	765	15.30	39.30	60.70	53 - 71	
2.36	694	13.88	53.18	46.82	42 - 58	
1.18	565	11.30	64.48	35.52	34 - 48	
0.600	425	8.50	72.98	27.02	26 - 38	
0.300	395	7.90	80.88	19.12	18 - 28	
0.150	300	6.00	86.88	13.12	12 - 20	
0.075	298	5.96	92.84	7.16	4 - 10	

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	525	10.50	10.50	89.50	79 - 100	
9.5	612	12.24	22.74	77.26	70 - 88	
4.75	735	14.70	37.44	62.56	53 - 71	
2.36	652	13.04	50.48	49.52	42 - 58	
1.18	598	11.96	62.44	37.56	34 - 48	
0.600	417	8.34	70.78	29.22	26 - 38	
0.300	364	7.28	78.06	21.94	18 - 28	
0.150	385	7.70	85.76	14.24	12 - 20	
0.075	321	6.42	92.18	7.82	4 - 10	

Note:

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Office & Laboratory : # 133, Bhuvaneshwarinagar, Dodda Basti Main Road, Bangalore - 560 056.
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Job No.: CQCE/BBMP/CSR/W.No.16/2019-20

Date: 06.08.2019

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP, Bangalore.
Agency	:	**Sri. T. Chandra Sekar Reddy,** Contractor, Bangalore.
Name of the Work	:	Pothole Filling Surroundings area of Ward No.16, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	06.08.2019

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.15	10.45	9 Kn (min)
2	Marshal flow, mm	2.67	3.42	2 – 4
3	Percent air voids in Mineral Aggregate	13.98	14.72	13 – 15
4	Voids in Compacted Mix	4.87	3.12	3 – 6
5	Percent Voids filled with Bitumen	67.58	68.25	65 - 75
6	Density, g/cc	2.26	2.27	--

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Job No.: CQCE/BBMP/CSR/W.No.16/2019-20

05.08.2019

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP, Bangalore.
Agency	**Sri. T. Chandra Sekar Reddy,** Contractor, Bangalore.
Name of Work	Pothole Filling Surroundings area of Ward No.16, BBMP, Bangalore.
Technical Reference	IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	Bituminous Concrete
Date of Testing	05.08.2019

Result : Flakiness Index = **11.65%**

Elongation Index = **13.71%**

Result : Combined Flakiness & Elongation index **25.36%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Concrete is 30%

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Job No.: CQCE/BBMP/CSR/W.No.16/2019-20

Specific Gravity And Water Absorption Test
IS: 2386 Part III

05.08.2019

Client	Assistant Executive Engineer, Yeshwanthpura Sub Division, BBMP, Bangalore.
Agency	Sri. T. Chandra Sekar Reddy, Contractor, Bangalore.
Name of the Work	Pothole Filling Surroundings area of Ward No.16, BBMP, Bangalore.
Type of Mix	Bituminous Concrete
Date of Testing	05.08.2019

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2021	2026	2024	
2	Weight of basket suspended in water	W_2 g	754	754	754	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1267	1272	1270	
4	Weight of saturated surface dry aggregate in air	W_3 g	2015	2018	2015	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	748	746	745	
6	Weight of oven dried aggregate	W_4 g	2006	2009	2007	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.682	2.693	2.694	2.690
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.714	2.726	2.723	2.721
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.45%	0.45%	0.40%	0.43%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

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Job No.: CQCE/BBMP/CSR/W.No.16/2019-20

Date: 05.08.2019

TEST REPORT

CLIENT	:	**Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP, Bangalore.
AGENCY	:	**Sri. T. Chandra Sekar Reddy,** Contractor, Bangalore.
NAME OF WORK	:	Pothole Filling Surroundings area of Ward No.16, BBMP, Bangalore.
TYPE OF MIX	:	Bituminous Concrete
PERIOD OF TESTING	:	05.08.2019

The results of the tests conducted on the Bitumen sample for Bituminous Concrete

Sl.No	Description	Test Method as per IS	Test Result	Requirement as per IS: 73-2013
1	Penetration at 25°C, 100g, 5 Sec 1/10 mm	IS: 1203-1978 (RA-2009)	66	60 to 70
2	Softening point, °C	IS: 1205-1978 (RA-2009)	48	Min. 45
3	Ductility at 27°C, cm	IS: 1208-1978 (RA-2009)	100 >	Min. 50
4	Flash Point, °C	IS: 1209-1978 (RA-2009)	302	Min. 220

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Job No.: CQCE/BBMP/CSR/W.No.16/2019-20 Date: 06.08.2019

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP, Bangalore.
Agency	:	**Sri. T. Chandra Sekar Reddy,** Contractor, Bangalore.
Name of the Work	:	Pothole Filling Surroundings area of Ward No.16, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	06.08.2019

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.23	10.57	9 Kn (min)
2	Marshal flow, mm	2.65	3.89	2 – 4
3	Percent air voids in Mineral Aggregate	13.21	14.72	13 – 15
4	Voids in Compacted Mix	4.65	5.67	3 – 6
5	Percent Voids filled with Bitumen	70.21	72.31	65 - 75
6	Density, g/cc	2.26	2.27	--

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